LONG ISLAND BOTANICAL SOCIETY

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Retrieving the American Chestnut

John E. Potente

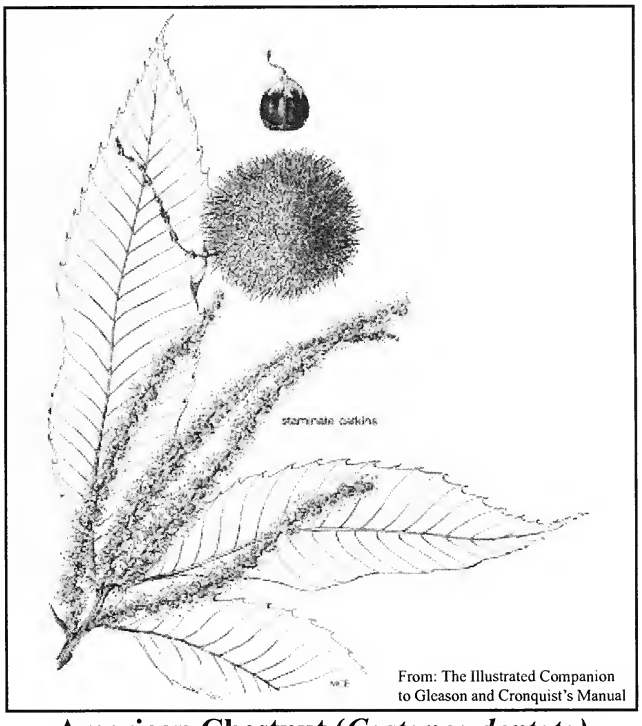
Theodore Roosevelt looked up at the American Chestnut tree on his estate at Sagamore Hill in Oyster Bay Cove on Long Island. He held an ax in his hand and an ache in his heart. Thick bark wrapped around massive trunks that held up the high arching branches offering summer shade. The American Chestnut tree (*Castanea dentata*) was one of the stanchions of the plant world in North America. It was tall, strong, bountiful, majestic and admired.

It grew along the length of Appalachian mountains, down their slopes, into their foothills and out onto glacially-sculpted Long Island. Thirsty for sunlight, it sent its trunk up over a hundred feet. Complimenting the west coast redwoods, the east coast American Chestnut trees grew to six centuries old, attaining girths of five to six feet across.

Its importance to wildlife was paramount: while oak provided acorns as winter staple on alternate years for deer, turkey, grouse, and small mammals, American Chestnut shed burs that burst open bearing three nuts apiece covering the ground every year. Its importance to the forest was central: fully one-quarter of the eastern deciduous canopy was American Chestnut. Its importance to the economy of the growing nation was far-reaching. American chestnuts comprised much of the livelihood of those along the Appalachians: chestnut timber was desired for lumber, construction, and even fine woodworking. Rich in tannin, its wood lasted longer than most other once harvested. It was truly an all-American tree.

Roosevelt arched his back and with the strength of all his muscle and all his will he drove the swinging ax into the dead chestnut tree. Chards tinged with orange splintered the air, raining on the ground. Large sheets of bloated bark collapsed and bounced at his feet. The wounded wood chipped and spun in pieces as he swerved and steered his ax until the towering tree groaned and crashed, shaking the ground on which he stood.

In 1910, after serving as one of the most popular presidents and initiating the national park system saving vast areas of forestland, he sat helpless as he looked up at the sickened trees on his homeland. The chestnut blight had reached Long Island. Spreading at a rate of 20 to 50 miles a year, it affected every single American Chestnut tree from Manhattan to Montauk in a decade's time. The post-Wisconsinian reign of the American Chestnut tree on Long Island was over. (Cont. on page 4)



American Chestnut (*Castanea dentata*)

Long Island Botanical Society
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The Long Island Botanical Society is dedicated to the promotion of field botany and a greater understanding of the plants that grow wild on Long Island, New York.

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Society News

Remembrances at the Joseph M. Beitel Memorial Service at Theodore Roosevelt County Park, Montauk, Long Island, NY on Saturday, October 5, 2002. Dedication presented by Art Cooley

I would have never seen Curly Grass Fern if it hadn't been for Joe Beitel. Nor would I have been aware of fruiting Liverworts on the Little Peconic River, if Joe Hadn't pointed them out. Nor would I know how to make commercial quantities of lemonade from Dwarf Sumac. Nor would I have known what a tepui is. But then most of us would not have seen a lot of things if it hadn't have been for Joe Beitel. But I'm ahead of my story.

Joe Beitel walked into my sophomore biology class in 1967 two weeks after school started. This section of biology had been created after school began because all the other sections were too large. Each teacher, therefore, was given the choice of picking three or four students to send to this section of biology that I would teach. Clearly, I received students others did not want. I will be eternally grateful to the teacher that sent Joe to that section.

Life in that class was difficult for a while, considering how I came by the students. Joe, for his part, was enthusiastic, he was eruptive, he was talkative, he was disruptive, but he bubbled with enthusiasm and I liked that, I liked that a lot. At times, however, it was not clear whether he was in my class or I was in his. But then, most of us have been in his class since we first came to know him.

It was not long before he joined a weekend field trip group that Dennis Puleston, the Shores, the Cooleys and other adults conducted each weekend for high school students. We were primarily interested in birds. When we tried to get Joe to appreciate a Magnolia Warbler, he would ask what fern was that. When we watched a Sharp-shinned Hawk swoop in and take a Snow Bunting, he would pick seed pods off Evening Primrose. When we looked up, he would look down. And what he saw became his life's work.

In 1975, he organized a field trip of fellow students to Gilsum, New Hampshire where we have a cabin. A book of herbarium sheets of all the Pteridophytes of the area around the cabin was his present to us for the use of the cabin. Each sheet is annotated, scientifically accurate and a joy to those who have used it ever since in studies of ferns and fern allies. On Cinnamon Fern, it says, "see the hairy tufts at the base of the leaflets"; on *Lycopodium clavatum*, it says, "see the long peduncle on the strobilus". I can hear him admonishing me to look more closely so that I would not miss the paraphyses or the indusium covering the sorus. How many of us have been so instructed?

To this day, his mother does not know about Dwarf Sumac lemonade. Joe and his fellow students were having an evening program at the high school on environmental problems. They decided to have some foods made from wild materials to attract more visitors. Joe chose *Rhus copallinum*, Dwarf Sumac; he would make lemonade. But he had to get the acid off the seeds in the fruiting head.

The minibasket of his mother's washing machine would do nicely. Put the seeds in the machine, set the cycle to rinse, then siphon out the liquid, add sugar and voila: lemonade. Joe would always think about a problem a little differently from the rest of us. It was part of why we loved him so much.

Joe worked for the Environmental Defense Fund mapping fresh water wetlands in the Southwest Sewer District. He surveyed Suffolk County Parks for rare and endangered species. He helped compile books about what life occurred in many parts of Long Island. One had the feeling that he didn't do it for the organizations, but because he had to know what was there and he needed to know how to identify every plant that there was. In later years, this yearning took him, on behalf of the New York Botanical Gardens, to China, Oaxaca, Venezuela, especially to Venezuela.

Joe introduced me to tepuis in his living room. Many of us were taught by Joe in his home. He showed slide after slide. Were we only as strong as Joe we would have seen all of them. But what we saw excited us.

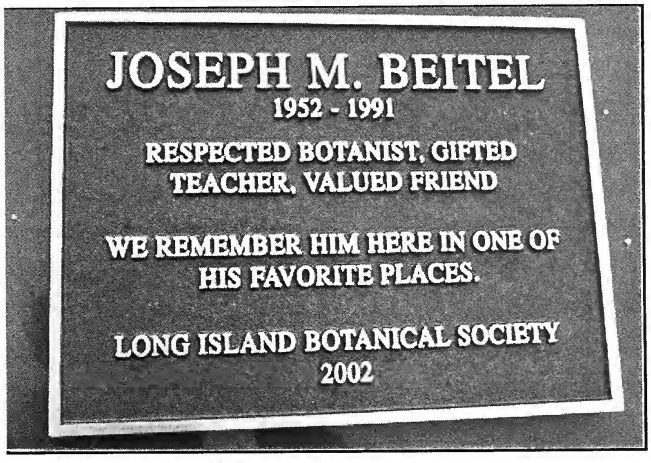
In March, I flew over the tepuis of southern Venezuela, the ones that give rise to Angel Falls and caramba biology. In Spanish, caramba means "upon my word", but to Joe it was the essence of discovery and joy and no person more accurately reflected the enthusiasm and excitement that word teaches than Joe. As I flew past those majestic escarpments of ancient rock, I could see Joe beside himself with joy, reveling in the newness of this unique habitat, one that he had the good fortune to be studying. I could hear shouts of "caramba" echoing up toward the heavens. Joe was there and I was being called to look at something exciting that he had discovered.

William Morton Wheeler, a famous Harvard entomologist, once noted that professional biologists will be condemned to live in laboratories sorting specimens and inhaling formaldehyde when they pass on, while amateur biologists will forever have the joy of scouring the landscape looking for new specimens. While Joe Beitel was a professional, we all know that he is not in a laboratory, but he is in the field yelling "Caramba" to anyone who will listen. If God isn't careful, he will soon be a botanist. And he could have no better teacher.

We love you, Joe, you have enriched our lives. You have shown us curly grass fern, tepuis and liverworts and you have shown us how to make lemonade. What more could anyone ask of a friend. We miss you greatly, Joe, but we will not forget your lessons.

Shirley Emma

Dedication of the Joseph Beitel Memorial Plaque Standing left to right: John Heidecker, Art Cooley, Joanne Tow, Karen Blumer, Skip Blanchard Sitting left to right: Eric Lamont, Jane Blanchard, Betty Lotowycz, Carol Johnston



Barbara Conolly

The Joseph Beitel memorial plaque now in place on a stone near one of his favored spots at Theodore Roosevelt County Park.

(Cont. from p.1) Roosevelt contacted William Murrell. A few years prior, in 1904, Murrell, a mycologist, sampled bark specimens from American Chestnut trees at the New York Zoological Park (now the Bronx Zoo). The trees had developed swollen orange-hued cankers on their trunks and subsequently lost their ability to cope. These trees along the avenues of the park quietly suffocated and died. While Murrell could see that a fungus was involved in this foreboding illness, he could not match its morphology to known North American species. In 1908, Murrell observed that American Chinquapins (*Castanea pumila*) in the New York Botanical Garden also wore the telltale chancre coatings and were dying. The news he relayed to Roosevelt was not good.

Curiously, Murrell observed that Japanese Chestnut trees (*Castanea crenata*) in the New York Botanical Garden were also affected. In the late 1800's, the fad for oriental nut trees had grown. As early as 1876, S. Parsons, a nurseryman in Flushing, imported chestnut trees from Japan and by the turn of the century they were readily available in mail order catalogs. Collectors and breeders also added to America the Chinese Chestnut trees (*Castanea mollissima*). David Fairchild of the US Plant Introduction Division of the USDA hired Frank Meyer to explore potential plant imports and, by 1901, the division, itself, ambitiously began bringing to our shores Chinese Chestnut trees. American Chestnut trees were greeted and challenged by their long lost cousins.

Chestnut trunks throughout Brooklyn, Queens, Nassau and Suffolk were all being scarred by the sinister dark orange cankers. Tiny dots of orange sprinkled the bark's skin while its underlying integument was indignantly undermined. By the hundreds and then thousands, American Chestnut trees on Long Island lost their bark, cambium, leaves and, ultimately, their lives.

The related Japanese and Chinese Chestnut trees, although also affected, fared better. In 1913, Fairchild again asked Meyer to go to China; this time to look for the disease. There, Meyer did, indeed, discover blight fungus on Chinese Chestnut. Samples were sent home and tested on American Chestnut. It killed the trees. In 1915, in Japan, too, he found it. The foreign and domestic fungus was one and the same. The blight, by then, was a raging American epidemic.

Sagamore Hill Estate

Theodore Roosevelt at Sagamore Hill, LI. 1910

John E. Potente

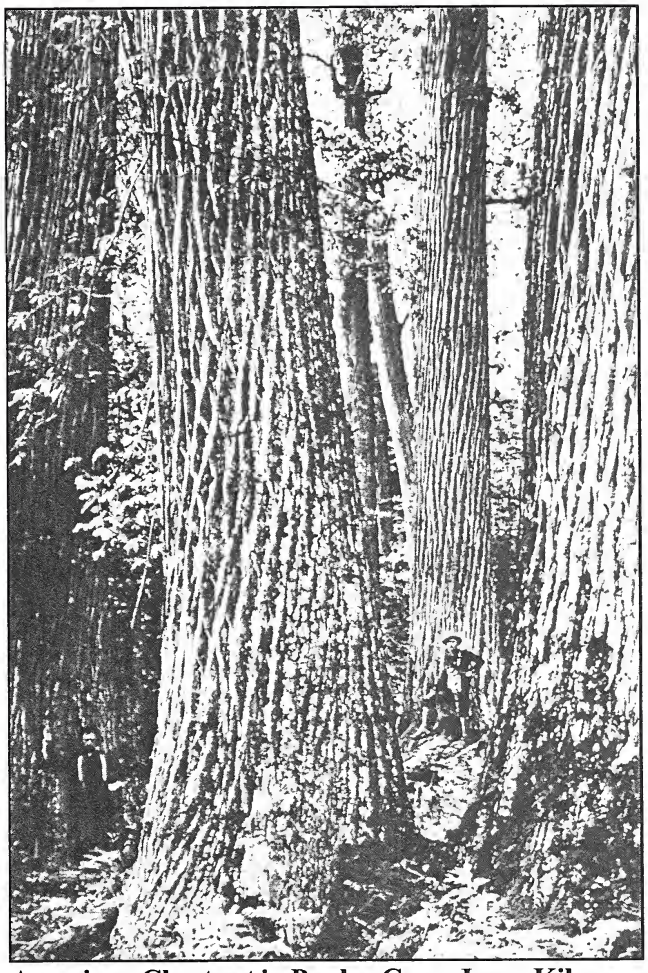
This blighted 30' American Chestnut has died since this photo was taken in 1996. Miller Place, LI

The lineage of chestnut extends back some forty million years in North America. Pollen dating from forest hollow sediments in Massachusetts indicate it was in our area of New England for some 4,500 years. At the time of European settlement it was estimated to constitute some 25% of the Appalachian forest hardwoods. It witnessed and survived dozens of glaciations, recuperated after episodic droughts, fires, and insect infestations, and replenished abandoned acreage after lumbering and clearing. But a microscopic fungal spore measuring a few microns across was now tormenting this forest giant.

As you enter Sunken Meadow State Park in Kings Park, on the north shore of Long Island, you will see a lawned area with some picnic tables on the right hand side. There are some very large old chestnut trees that are evenly spaced. These trees are Japanese Chestnut and appear to be about a hundred years old. Very likely, they were part of early original nursery stock that carried the blight from Asia. While the blight fungus probably had begun sporulating here in America in the tail end of the 1800's, it was not until 1904 that it was observed on infected American Chestnut by Herman Merckel at the New York Zoological Park in the Bronx and reported to Murrell.

The fungus feasted on the cambium of American Chestnut in the New York metropolitan area and spread north and south throughout the chestnut's range: by 1910, it was on trees in southern Connecticut; by the early 1920's, southern New York was wiped out; in Pennsylvania, swaths a mile wide were cut through forested areas to attempt to stop its spread; by 1925, practically all were dead through West Virginia; by the 30's North Carolina was hit; and by 1950, four billion trees were dead on 200 million acres. In a short fifty years, 99.99% of all American Chestnut trees were essentially eliminated as a forest tree.

While current battles of invasive plant species are focused on noticeable herbaceous and woody plants such as Mugwort (*Artemisia vulgaris*), Phragmites (*Phragmites australis*) and Oriental Bittersweet (*Celastrus orbiculatus*), here were invasive fungal spores which were invisible (and being obliviously inhaled by us) that went on to execute the single most devastating impact on eastern deciduous forest ecology since our own discovery of this continent.

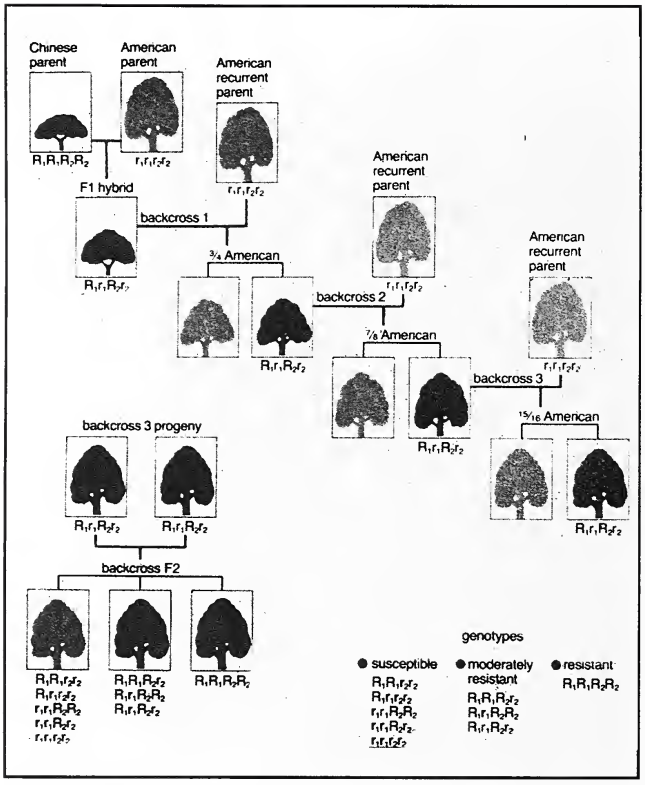


S. V. Streetor

American Chestnut in Poplar Cove, Joyce Kilmner Memorial Forest, North Carolina, 1910.

John E. Potente

Today's American Chestnut appears in the forest as humiliated understory twigs of root stock. Vail Blydenburgh Preserve, Smithtown, LI. 1996



Hybridization theory of the American Chestnut Foundation. By breeding for the resistance factor, R, while continuing to back-cross with American Chestnut, the desirable traits of our native tree is saved and the nonnative traits are culled. Note that the above diagram assumes there are two genes for resistance, R1 and R2.

John E. Potente

The "Hammond" chestnut tree posing with Muttontown Preserve director, Alan Lindberg. This tree, planted on Long Island before 1929, is probably a hybrid of Japanese (*Castanea crenata*) and European (*Castanea sativa*) descent. Its durability in the face of the blight made it one of the early breeding choices for its resistance factor. Many of the trees being grown and distributed throughout the east coast by the American Chestnut Foundation will have their resistance genes descended from this tree.

The chestnut trees of China and Japan date back long before their American counterparts and probably evolved concurrently with the blight. Although often scarred by it, they survive. These trees were not of forest character and instead resembled cultivated orchard trees. Agricultural practice in Asia may have very well contributed: the nuts of the Chinese and Japanese Chestnut trees were larger, the tree form was more tailored for harvesting, and they exhibited better, although varied, resistance to the blight fungus.

As the blight began decimating the chestnut trees of America, breeders experimented with hybrids crossed with Asiatic trees that might salvage the American strain. Many of these trials proved unsuccessful and in 1960 the government-sanctioned USDA program was abandoned.

Experienced with the hybridization of corn, barley and wheat, a botanist, Charles Burnham, saw that earlier breeding attempts to rescue the American Chestnut mistakenly relied simply on large numbers of random crosses. Burnham devised a genetic scheme whereby repeated back-crosses to American Chestnut would dilute the genes of the Chinese or Japanese Chestnut. Then, by deliberately infecting the resultant saplings, one could eliminate those that showed blight susceptibility. Backcrossing initial hybrids with American Chestnut three times would obtain a tree that is 15/16ths American Chestnut. Then, by intercrossing those offspring, one could produce individual trees inheriting the genes for resistance from both parents. "Weeding out" those that did not exhibit American morphological characteristics would increase the purity ratio. This became the premise for the American Chestnut Foundation (ACF).

The foundation was formed in 1983 by Burnham and others and began its breeding program. Resistant Chinese and Japanese trees were pollinated with American Chestnut. The "Hammond" chestnut tree of the Muttontown Preserve became one of the sources when Arthur Graves, curator of the Brooklyn Botanic Garden, collected its pollen. Repeated crosses over the past 20 years have been encouraging. This autumn, with over 17,000 trees growing on a 60-acre orchard in Meadowview, Virgina, a basket was filled with B3-F2 generation of chestnuts. One more cycle of intercrossing remains before the American Chestnut Foundation will have its resistant generation!

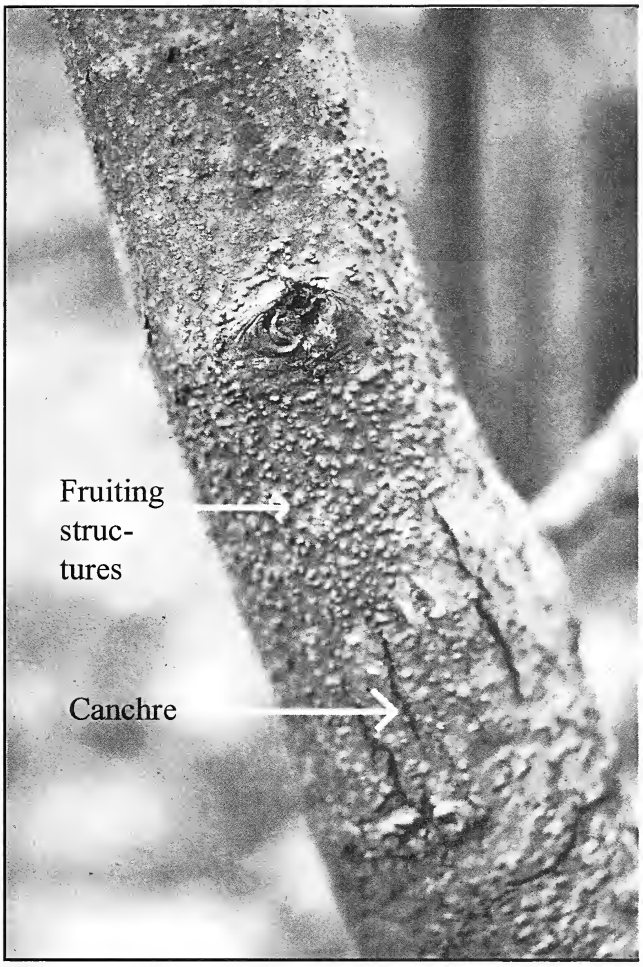
America was not alone in its woes. In 1938, the blight attacked the European Chestnut (*Castanea sativa*) as a consequence of the introduction of Japanese Chestnut trees there. The trees were decimated in Italy. France, too, was being affected. However, in 1950, before Europe had lost all its trees, some European Chestnut trees growing near Genoa were found to possess some cankers that had stopped progressing.

The fungus, now identified as *Chryphonectria parasitica*, is an ascomycete: it reproduces sexually by scattering wind-borne ascospores . It also reproduces asexually by producing sticky masses of conidia which can be tracked about by birds and insects. The fungus on the "halted" cankers in Genoa lacked the orange pigment and most of their pycnidia (asexual fruiting structures). These cankers contained a weaker strain of fungus that was "hypovirulent". Even more significant was that this trait for hypovirulence was transmissible!

Often, when fungi of the same species approach one another, their threadlike hyphae join and form a bridge (anastomosis) and they exchange cytoplasm. Electron microscopic investigations revealed that the determining factor for hypovirulence was dsRNA being passed from one fungi to another. The hypovirulent strains were actually incapacitating the blight fungi. The fungus, itself, was being parasitized by a primitive virus! Fortuitously, natural occurring hypovirulence led to the chestnut's recovery in Italy.

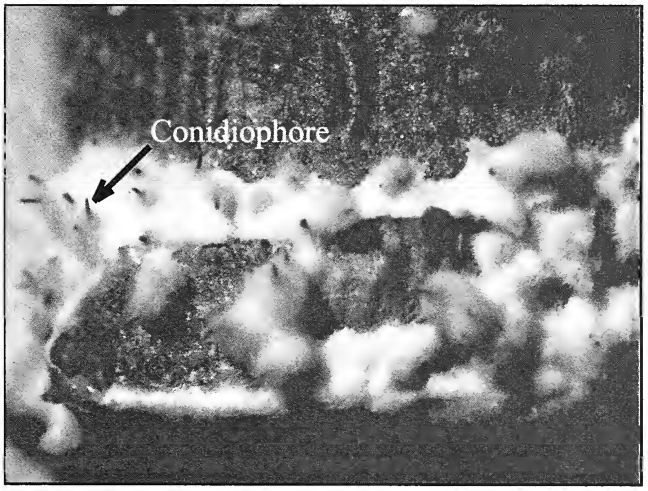
The hypovirulent fungi were brought to the US in expectation of a cure. American trees were inoculated and most of the cankers tested were stopped. But not all. Sandra Anagnostakis of the Connecticut Agricultural Experiment Station identified genes that control compatibility between different strains of *C. parasitica*. The greater the genetic variation, the less the chance of hyphal anastomosis.

Concurrently, natural hypovirulent strains were being discovered in the United States. However, hopes for hypovirulence causing the demise of US blight have been compromised. It may be because the blight persisted so much longer in North America before the hypovirulent forms arose (or were introduced). The North American blight was given a free reign to differentiate into 100 different vegetative strains, playing a game of elusion.



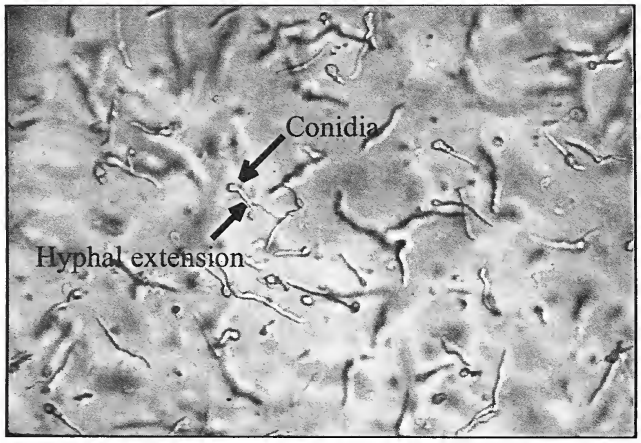
John E. Potente

Bark of infected American Chestnut at Vail Blydenburgh Preserve in Smithtown, LI. 1996 Disease is manifested by the cankered bark. This is caused by the spread of the fungal mycelium through the cambium. Tiny orange dots of fungal fruiting bodies are seen above canchre.



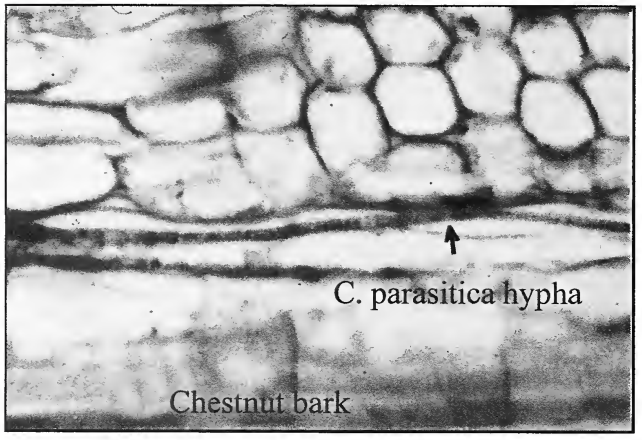
William MacDonald/ West Virginia University

***Chryphonectria parasitica* is an acsomycete. It produces both asexual conidia (which break off from a conidiophore and are carried down the trunk by rain) and sexual ascospores (which are produced in ascocarps and are carried in the wind).**



Louis Shain/ University of Kentucky

Germinating Conidia of *Chryphonectria parasitica*. The spore, itself, is about a micron in length.



Fred Hebard, ACF

Intercellular fungal intrusion of chestnut cambium. The hyphae penetrate the bark and form mycellium mats which constitute the canker.

Louis Shain/ University of Kentucky

Lysis of *C. parasitica* hyphal tips by protein extract from Chinese chestnut.

I first became exposed to the research on American Chestnut through Sandra Anagnostakis. She briefed me on the biological control work being done with hypovirulence in Connecticut. She then referred me to the ACF and their work with hybridization. I joined ACF and in 1995 volunteered to become the director of the Long Island district of its New York Chapter (TACFNY)].

TACFNY was sponsoring an intriguing third approach utilizing genetic engineering at the SUNY Syracuse School of Forestry and Environmental Science. A triad of antifungal genes were being investigated that would be added to the 50,000 or so genes of the American Chestnut genome. They would confer the ability of American Chestnut to produce, upon trauma, an antimicrobial peptide, oxalate oxidase (a defense enzyme found in wheat) and a chitinase gene (enzyme found in soil fungi).

Although a promoter gene was being included to activate the gene complex upon tissue damage, I was concerned about the manifestations of these genes. While their efficacy was proving successful in the lab, what would be the implications out in the forest? Once triggered, the chitinase enzyme would dissemble the chitin wall of the *Crypnonectria parasitica* fungus. However, there was nothing to stop it from also affecting the chitin exoskeletons of insects that might be browsing on the foliage. Should insects receive collateral damage, what would be the impact of a reintroduced tree that once constituted one quarter of the forest biomass? And what would be the effect of bird life that depended upon these insects?

In 1996, now on the board of directors, I presented my concerns to the chapter and the genetic research team at Syracuse. I proposed a promoter gene that was more specific: one that would act as a switch and restrict the action to the stem, bark, or cambium where the blight problem occurred. This would disarm the gene triad at the leaf and flower and seed level providing a measure of safety for forest foragers, including us.

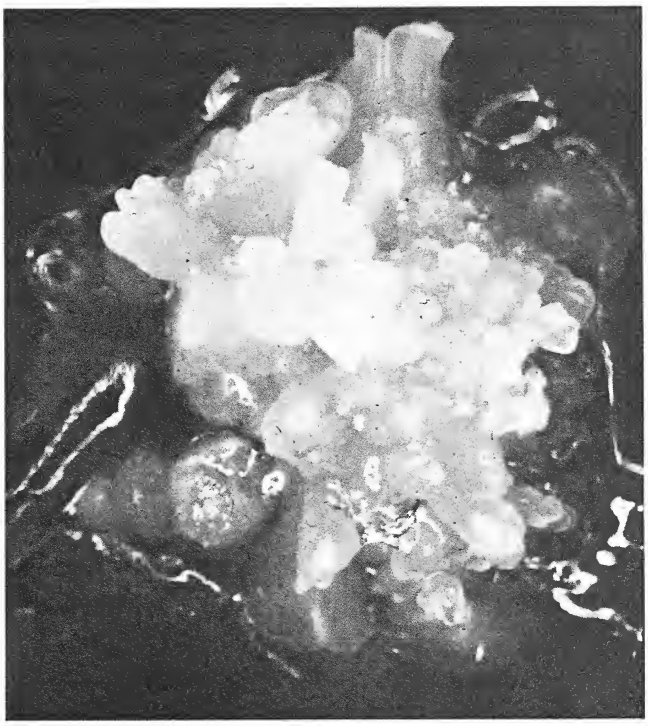
Despite my urgings, this extra procedure would entail extended research time, supplementary research personnel and additional budget allocations that were not available. My frustrations were allayed when, in 1998, in large measure to through the efforts of Herb Darling, president of TACFNY, the New York legislature appropriated $150,000 a year, for three years, to bolster the program.

These funds were then used to expand the research team. And most gratifying, to me, was the inclusion of a student who would undertake the research of a promoter gene associated with stem or wood-forming tissue. The following year, in May of 1999, Nature published a study, done at Cornell University, on the ill-effects Bt-corn pollen had on Monarch butterflies. (Bt-corn is genetically engineered with a toxin derived from the bacterium *Bacillus thuringiensis* to protect corn crops from moth caterpillars.) Chuck Maynard, director overseeing the SUNY Syracuse project, wrote me, "I suspect that no single pilot study has ever unleashed such an international fervor. I sure am glad you persuaded us to look for a cambium-specific promoter." In the fall of 2002, William Powell, co-director of the team, informed me that the student, Bernadette Conners, received her Ph.D. as a result of successfully identifying a suitable chestnut cambium promoter gene. This promoter is now included in the "gene construct" as a regulatory switch to restrict the antifungal barrage to the bark cambium.

Currently, Maynard is developing the means to get the modified genes into American Chestnut. This can be done either through embryonic cells derived from chestnuts or at the even earlier stage by getting the DNA into chestnut pollen.

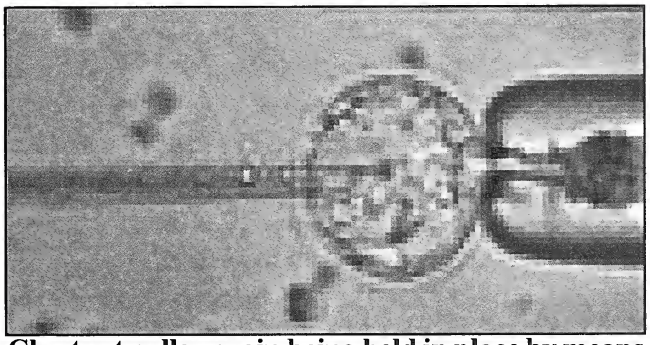
Chestnuts from all over New York State are being sent to Syracuse. The tiny chestnut embryos are extracted from the nuts and tissue cultured into thousands of replica embryos. Pollen is also being collected. Transformation into modified-DNA cells can then take place a number of ways. Recruiting *Agrobacterium tumefaciens* takes advantage of a parasitic bacteria to deliver the DNA "Trojan horse style". Using a "gene gun", isolated DNA material is precipitated onto microparticles of gold which are then blasted into the cells. Microinjection utilizes tooling that actually pierces the cell assuring that each acquires the new genes.

Transgenic (genetically transformed) plants have been grown from tissue culture in the lab and are being raised in the laboratory greenhouse. These plants are then tested by making small bruises on their stems and injecting drops of blight fungal solution. Resistance is observed with canker formation and healing. While there are still many tests to be done and questions to be answered, the progress being made is impressive.

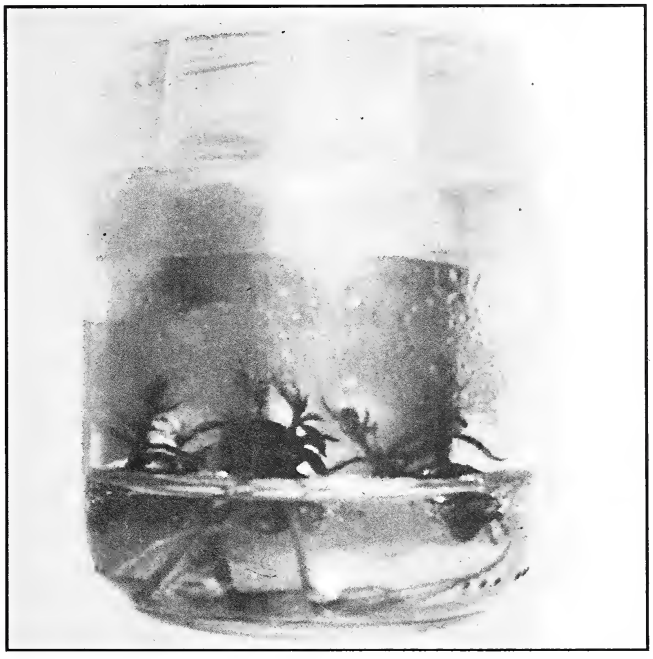


Charles Maynard/ SUNY Syracuse

Mass of somatic embryos tissue-cultured from nuts of American Chestnut.



Chestnut pollen grain being held in place by means of vacuum holder while a micropipette pierces the cell, injecting new genetic material.

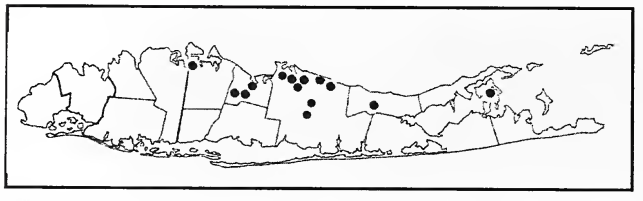


Charles Maynard/ SUNY Syracuse

American Chestnut plants grown from tissue culture.

Since mature flowering American Chestnut trees are now so widely scattered, one must deliver the pollen to the pistil. Here, John Potente gets a lift to cross-pollinate a tree in Caleb Smith State Park in Smithtown. 1998

Anthers are brushed against the stigmas in cross-pollination. The female flower is then qickly bagged to prevent pollen contimanation.



Map of locations of mature American Chestnut on Long Island and Shelter Island.

Upon volunteering as director of the Long Island district, I filled a position that had no predecessor. To start, I had to inventory the remaining American Chestnut trees that flowered. While chestnut trees are monoecious, male flowers cannot fertilize female flowers of the same tree. I needed to cross-pollinate by hand the trees I found. The nuts of Long Island ecotype would be planted on Long Island or sent on to the programs for their regional germplasm. In 1995, I put an announcement in the December issue of LIBS. Soon thereafter, calls trinkled in and I engaged my search.

Aside from the many false leads of Horse Chestnut (*Aesculus hippocastanum*) and hickory, I was all too often informed of trees that proved to be Chinese or Japanese Chestnut. Even more disappointing were those trees that were hybrids of Chinese, Japanese, European, and America.

The status of American Chestnut is truly a sad one. When I did rarely come across one, I would stand and stare up at this dying emperor: sturdy furrowed bark bracing a canopy of long, graceful leaves that were artfully scalloped and green like emerald. And amongst its breathtaking beauty, were the yellowed starving leaves of blighted branches. I was witnessing, almost in disbelief, one of the great accomplishments of the natural world on the verge of extinction. What was the right thing to do? Watch? Interact? Go home?

All too often, I have been dismayed by biological controls that have spun unexpectedly out of control. Too many times have I seen insect or mammalian or even vegetative predators brought in to control a prior mistake; only to generate an even larger unforeseen problem. Was hybridization or hypovirulence or high-tech genetic engineering immune to such casualty?

I plucked leaves as specimens and souvenirs and went on to learn more. During the last seven years, through the help of alert naturalists, I located many areas with blighted sprouts and just over a dozen large flowering trees, most on or near the Harbor Hill Moraine. They were not big or old. And of those that I did find and pollinate, many have since become blighted and are in their death throes. The large roots persist, for they are not affected by the blight. However, the struggle to sprout is causing attrition of their nutritional reserve. There are now less than a hundred mature trees producing nuts in all of New York State.

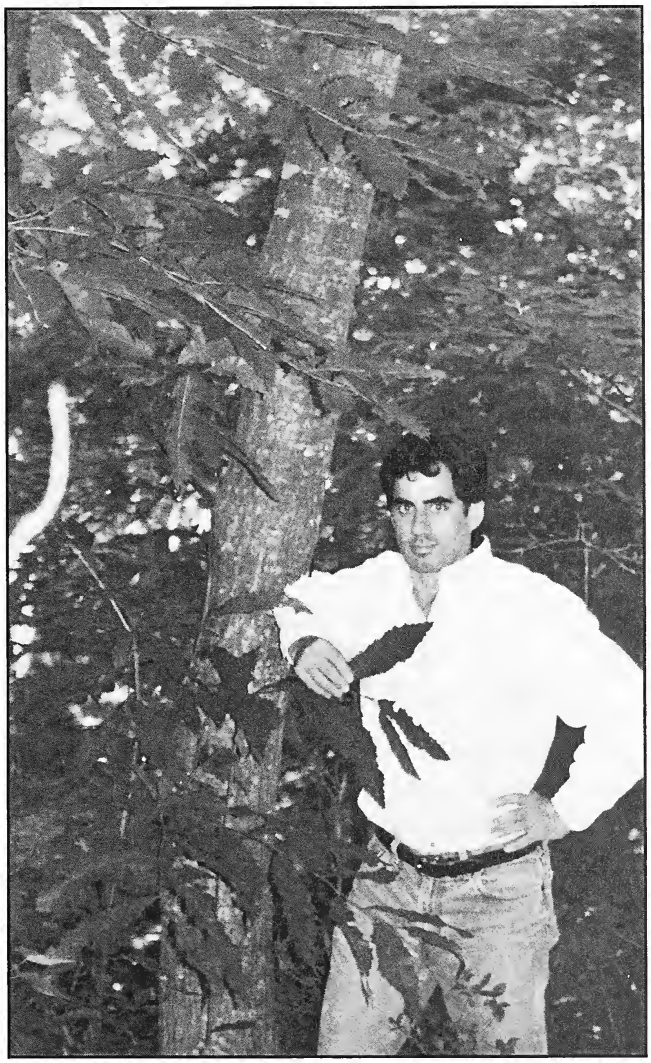
The largest tree I came across was about forty feet in height on private property in Cold Spring Harbor. The owner had vigilantly been "mudpacking" the cankers as they erupted. Chestnut trees can be nursed by making a slurry of soil and binding it to the canker with wrapping. *Trichoderma* spp., present in soil, produce a chitinase (a derivative of which is utilized in the genetic engineering project) which dismembers the *Chryphonectria parasitica* blight fungus.

A fine specimen sits sprawled on a vacant lot in Rocky Point. It is in open sun and still has the smooth gray bark of a younger tree. Another, in a backyard in Wading River is growing straight up, as it is surrounded by tall adjacent trees. Of three found in Stony Brook, two have been blighted back to the ground this past year. Chestnut trees on Long Island can grow for about twenty years before they contract the blight. At twenty years, they are about twenty feet high and old enough to flower. The stress of the blight seems to trigger flowering as a final burst to perpetuate the species.

I established two chestnut orchards on Long Island: one in Caleb Smith State Park in Smithtown and one on the private preserve of Native America in Hauppauge. Another will be planted at the Nassau BOCES Center in Brookville, come spring. The Caleb Smith site has trees from upstate New York. This is part of the host exchange program that acts as an insurance for the genotypes of the nine New York districts in the event that one of the districts gets completely wiped out. The site in Hauppauge is of pure Long Island stock, as will be the site in Brookville.

As we gratify our aspirations and near our aim, we will soon see if the modifications made to the American Chestnut grace this noble giant. Will the new saplings behave and be accepted by their forest friends? Only time will tell what benefaction or miscalculation has been done by the research and voluntarism. However, one thing is for sure: the affection for the American Chestnut tree inspired a tremendous massive effort of dedication in attempt to undo a grave misfortune.

John E. Potente is currently the Director of District #1 (Long Island) of the New York State Chapter of the American Chestnut Foundation. He recieved his BS at SUNY Stony Brook, his MS at Long Island University at C.W. Post and his DMD at Washington University.



One of the few American Chestnut trees that manages to attain a girth of 8"dbh (diameter at breast height) grows in Wading River, Long Island alongside John Potente. 1996

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Long Island Botanical Society
Muttontown Preserve
Muttontown Lane
East Norwich, New York 11732

Programs

January 14, 2003* Tuesday, 7:30 PM
Members Night: Members are welcome to bring slides, stories, specimens, and tales of peculiar sightings of favorite plants. A great opportunity to show what you have found while exploring on Long Island or elsewhere. Please call Rich Kelly (516-354-6506) in advance to advise as to the approximate number of slides that you would like to show. Thanks.

Location: Bill Paterson Nature Center, Muttontown Preserve, East Norwich

February 11, 2003* Tuesday, 7:30PM
Lois Lindberg: Learn how plants got their names and about historical uses of plants in the **"Legends and Lore of Wildflowers."** Lois is the Natural History Curator for Nassau County Museums at Sands Point and a LIBS Flora Committee member.

Location: Bill Paterson Nature Center, Muttontown Preserve, East Norwich

March 11, 2003* Tuesday, 7:30 PM
Andy Greller: "Rainforests of Sri Lanka." This talk will also touch on the culture, religion, and life of the local people. Andy is Professor Emeritus at Queens College where he taught Biology for 30 years. He specializes in vegetative geography and is very knowledgeable about local vegetation and that in Florida and Sri Lanka.

Location: Bill Paterson Nature Center, Muttontown Preserve, East Norwich
* Refreshments and informal talk begin at 7:30. Formal meeting starts at 8:00 PM.
Directions: 516-571-8500